Circular Connectors

Contents

Circular Connectors

A range of high reliability, rugged, RoHS-compliant Circular Connectors to meet the high standards of MIL-DTL-5015, priced to be cost-effective for commercial and industrial applications.

These connectors are designed for use in harsh environments. The high specification connectors are Cadmium-free and Hexavalent-Chromium-free to satisfy the requirements of RoHS (unlike the military standard version of MIL-DTL-5015). The connector range features free plugs, panel mount and cable connector orientations, in a number of popular shell and layout types. Pin and socket contacts can be selected in either side of a mating pair.

Features

- Intermateable with MIL-DTL-5015
- Low cost, highly durable & rugged connector system
- Solder termination
- Full environmental sealing with the use of backshells and sealing gaskets, exceeds IP67

- Threaded and polarised coupling
- Zinc Cobalt alloy black shells, for RoHS compliance
- COTS applications where MIL spec is not mandatory

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Circular Connectors Specification

Materials

Outer shell:	Aluminium Alloy base material, Zinc Cobalt Alloy, Black finish
Inner contacts:	Copper Alloy, Silver finish
Insulator, Grommet:	Synthetic Rubber

Electrical

Current:	13A
Working voltage	
10SL shell:	500V AC, 700V DC
12S shell:	500V AC, 700V DC
14S shell:	200V AC, 250V DC
Voltage proof	
10SL shell:	2,000V AC
12S shell:	2,000V AC
14S shell:	1,000V AC
Insulation resistance:	5,000MΩ min

Mechanical

Durability:	500 operations

Environmental

Operating temperature:	-55°C to +125°C
Vibration sensitivity:	10Hz to 500Hz, 98m/s² (10G)
Shock severity:	490m/s² (50G) for 11ms
Water resistance (sealing):	1.8m for 48 hours – exceeds IP67

Wire Detail

16 to 22 AWG

7.50
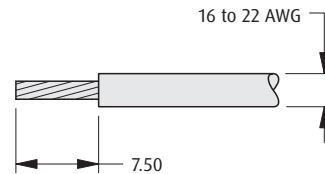
Pin Numbering & Spacing

Views are shown onto the mating face of each connector type.

	10SL SHELL		12S SHELL	14S SHELL	
	2 CONTACT (10SL-4)	3 CONTACT (10SL-3)	2 CONTACT (12S-3)	4 CONTACT (14S-2)	6 CONTACT (14S-6)
FEMALE	2.31 / 4.62 — B A	2.31 / 4.62 / 1.35 — A C B 2.67	2.64 / 5.28 — A B	2.29 / 4.57 — A D B C 2.29 / 4.57	7.01 / 3.51 / 4.06 — A B F C E D 8.13 / 2.29 / 4.57
MALE	2.31 / 4.62 — A B	2.31 / 4.62 / 1.35 — C A B 2.67	2.64 / 5.28 — B A	2.29 / 4.57 — D A C B 2.29 / 4.57	7.01 / 3.51 / 4.06 — A F B E C D 8.13 / 2.29 / 4.57

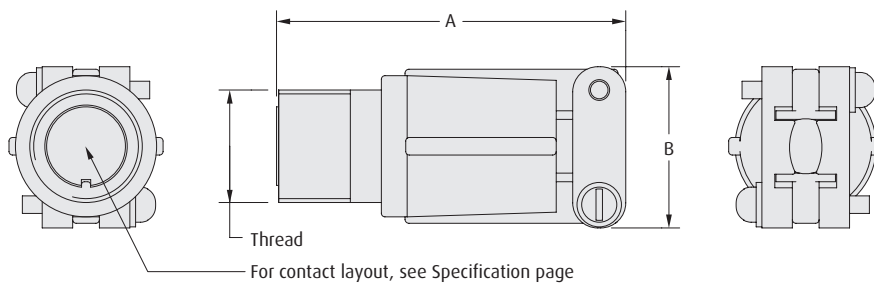All dimensions in mm.

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Circular Connectors

Cable Connector & Straight Plug

- Male & female circular connectors intermateable with MIL-DTL-5015.
- Rugged connector system for harsh environments.
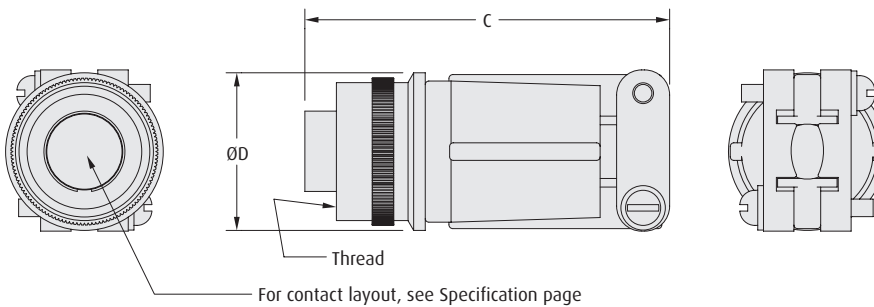- Exceeds IP67.
- Recommended wire strip length is 7.5mm.

CABLE CONNECTOR

SHELL SIZE	THREAD	A max	B max
10SL-3	5/8-24UNEF	54.10	22.76
10SL-4	5/8-24UNEF	54.10	22.76
12S-3	3/4-20UNEF	54.10	22.76
14S-2	7/8-20UNEF	54.10	25.94
14S-6	7/8-20UNEF	54.10	25.94

Thread

For contact layout, see Specification page

- Connector Kit includes internal sealing grommet (not shown here).

STRAIGHT PLUG

SHELL SIZE	THREAD	C max	ØD max
10SL-3	5/8-24UNEF	54.10	24.10
10SL-4	5/8-24UNEF	54.10	24.10
12S-3	3/4-20UNEF	54.10	25.30
14S-2	7/8-20UNEF	55.91	28.53
14S-6	7/8-20UNEF	55.91	28.53

Thread

For contact layout, see Specification page

- Connector Kit includes internal sealing grommet and rear rubber bushing (not shown here).

HOW TO ORDER

C90 - 310XX XXXX-X X

SERIES CODE

TYPE	
3101F	Cable connector with backshell
3106F	Straight plug with backshell

CONTACT GENDER	
P	Male
S	Female

SHELL SIZE	
10SL-3	Thread 5/8-24UNEF, 3 contacts
10SL-4	Thread 5/8-24UNEF, 2 contacts
12S-3	Thread 3/4-20UNEF, 2 contacts
14S-2	Thread 7/8-20UNEF, 4 contacts
14S-6	Thread 7/8-20UNEF, 6 contacts

All dimensions in mm.

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Circular Connectors

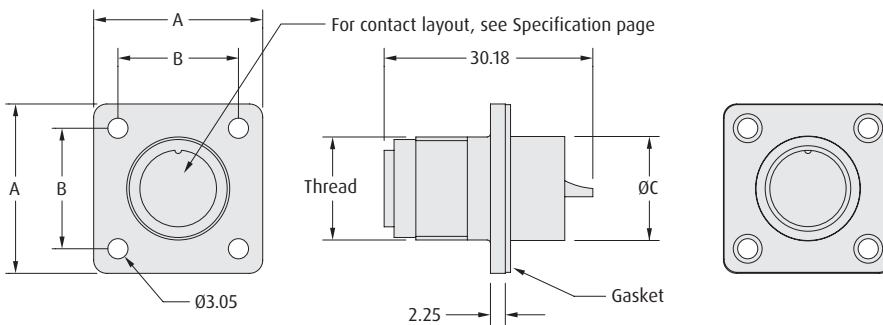## Panel Mount Connector, Receptacle Style

- Male & female circular connectors intermateable with MIL-DTL-5015.
- Features screw holes for panel mounting.
- Gaskets provide panel mount sealing, and can be used either side of the flange.
- Mates with C90-3106F Straight Plug connectors shown on previous page.

MALE CONTACT

For contact layout, see Specification page
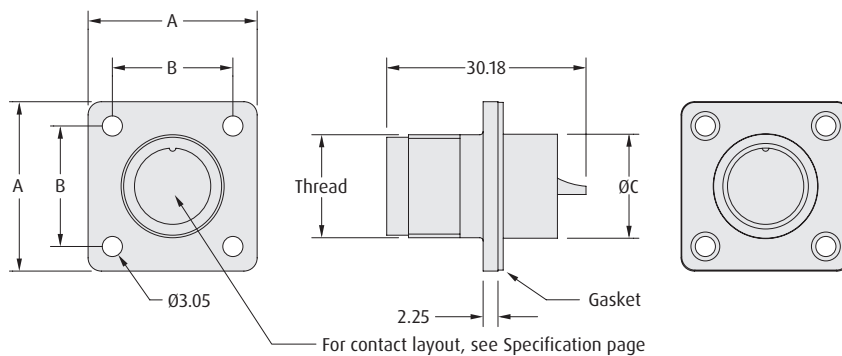
SHELL SIZE	THREAD	A	B	ØC
10SL-3	5/8-24UNEF	25.65	18.25	15.75
10SL-4	5/8-24UNEF	25.65	18.25	15.75
12S-3	3/4-20UNEF	28.02	20.62	17.17
14S-2	7/8-20UNEF	30.40	23.02	18.92
14S-6	7/8-20UNEF	30.40	23.02	18.92

FEMALE CONTACT

For contact layout, see Specification page

HOW TO ORDER

C90 - 3102R XXXX-X X

CONTACT GENDER	
P	Male
S	Female

SERIES CODE

TYPE	
3102R	Panel mount connector with gasket

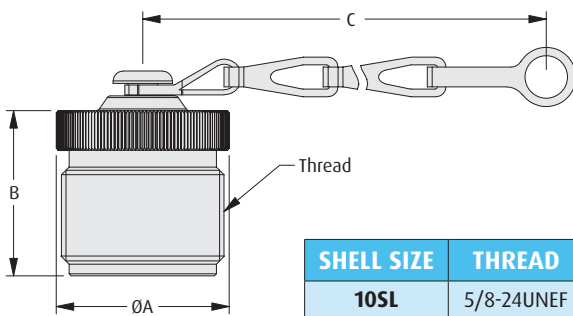| SHELL SIZE	
10SL-3	Thread 5/8-24UNEF, 3 contacts
10SL-4	Thread 5/8-24UNEF, 2 contacts
12S-3	Thread 3/4-20UNEF, 2 contacts
14S-2	Thread 7/8-20UNEF, 4 contacts
14S-6	Thread 7/8-20UNEF, 6 contacts

All dimensions in mm.

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Circular Connectors

Dust Caps & Rubber Bushing

- Dust cap with external thread for use with Straight Plugs (C90-3106F).
- Dust cap with internal thread for use with Cable connectors (C90-3101F) and Panel Mount connectors (C90-3102R).
- Dust caps supplied fitted with chain.
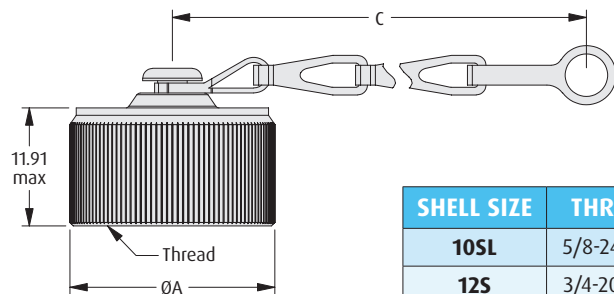- Rubber Bushing for use with Cable connectors (C90-3101F).

DUST CAP – EXTERNAL THREAD

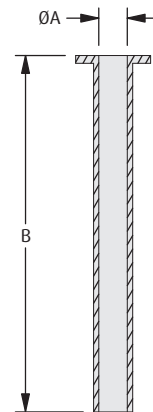| SHELL SIZE	THREAD	ØA max	B max	C
10SL	5/8-24UNEF	17.45	16.66	101.60
12S	3/4-20UNEF	20.62	21.44	114.30
14S	7/8-20UNEF	23.80	21.44	114.30

DUST CAP – INTERNAL THREAD

SHELL SIZE	THREAD	ØA max	C
10SL	5/8-24UNEF	20.70	101.60
12S	3/4-20UNEF	25.40	114.30
14S	7/8-20UNEF	28.57	114.30

RUBBER BUSHING

TYPE	ØA	B
4	5.59	69.85
6	7.92	66.68

HOW TO ORDER

C90 - 2504X - XXXX

SERIES CODE

TYPE

TYPE	
2	External thread
3	Internal thread

SIZE	
10SL	For 10SL shell size
12S	For 12SL shell size
14S	For 14SL shell size

HOW TO ORDER

C90 - 3420 - X

SERIES CODE

TYPE	
4	For 10SL shell size
4	For 12SL shell size
6	For 14SL shell size

All dimensions in mm.

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